

Case study title: **A Real Time Application of the TAOS Model - Hurricane Luis 1995**

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Case study emphasis: The prediction of storm surge and wave heights to determine vulnerable areas during the passage of hurricane Luis over Antigua and Barbuda

Summary: The Arbiter of Storms (TAOS) is a hazard model, developed with the support of USAID/OAS Caribbean Disaster Mitigation Project (CDMP), for assessing the impact of storm surge and wave action on coastal areas throughout the region. It was intended to assist emergency managers, land use planners and meteorologists in assessing the risks associated with these meteorological hazards. A straightforward application of the TAOS model is to estimate, in real time, the effects of an individual active storm.

One such application occurred as hurricane Luis approached the Eastern Caribbean in 1995. The TAOS model was used in real time to compute the storm surges and the wave heights associated with the passage of the hurricane. The input for the model was the current and predicted characteristics of the hurricane, including the location, maximum wind speeds, minimum sea-level pressure and the radius of maximum wind speeds. The source of the information was the advisories and forecasts of the Tropical Prediction Centre in Miami, Florida.

The output from the model run included the maximum storm surge and wave heights, and time series of the surge and wave heights at selected locations. This information was relayed to the Antigua and Barbuda Meteorological Service to be used as guidance in the preparation of its public advisories. The results were considered useful in determining the areas most susceptible to flooding as a result of the storm surge and to estimate the possible heights of the waves expected to accompany the passage of the hurricane.

Date that model application was completed: September 1995

Case study geographical location: Antigua and Barbuda, West Indies

Vulnerability assessment indicators: Storm surge and wave heights

Methodology data requirements: Present and predicted characteristics of the hurricane

Direct participants in the application of the model of the vulnerability assessment:
National Government

Methodology objective: Compute storm surge and wave heights for Hurricane Luis

Methodology output: Storm surge and wave heights

Results of methodology application at case study site: To assist with public advisories for the hurricane and the determination of possible vulnerable sites.

Lessons learned: Real time prediction of storm surge and wave heights are useful in the preparation of public advisories issued during the occurrence of tropical storm or hurricane